

CLAIMS

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1. A method for providing a cured coating on a substrate from a composition comprising a combination of at least one epoxy compound, at least one polyol and at least one photoinitiator wherein said method comprises:

(a) exposing at least one component of the composition to a source of radiation; and

(b) applying the exposed composition onto a substrate thereby forming a coating upon the substrate.

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2. The method according to Claim 1 wherein the substrate comprising at least one member selected from the group consisting of metal, wood, concrete and cement.

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3. The method according to Claim 1 wherein the substrate comprises metal and the coating overlies a joint between at least two metal substrates.

4. The method according to Claim 3 wherein the joint is formed by welding together at least two automotive body components.

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5. The method according to Claim 1 further comprising (c) heating the coated substrate to a temperature sufficient to improve adhesion of the composition to the substrate.

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6. The method according to Claim 1 wherein the epoxy compound comprises a cycloaliphatic epoxy compound.

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The method according to Claim 1 wherein the polyol comprises a polyether polyol, a polyester polyol or mixture thereof.

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8. The composition according to Claim 1 wherein the photoinitiator comprises a UV photoinitiator.

9. The method according to Claim 8 wherein the radiation comprises ultraviolet radiation.

10. The method according to Claim 1 wherein the photoinitiator comprises an onium salt.

10 11. A curable composition comprising a combination of:

- (a) at least one epoxy compound;
- (b) at least one resin;
- (c) at least one polyol; and
- (d) at least one photoinitiator which is present in amount sufficient to provide

15 cross-linking of at least a portion of the composition upon exposure to radiation.

12. The composition according to Claim 11 wherein the epoxy compound comprises a cycloaliphatic compound.

20 13. The composition according to Claim 11 wherein the polyol comprises a polyester polyol, polyether polyol or mixture thereof.

14. The composition according to Claim 11 wherein the photoinitiator comprises a UV photoinitiator.

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15. The composition according to Claim 14 wherein the photoinitiator comprises an onium salt.

16. The composition according to Claim 11 further comprising (d) a thickening agent.

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17. The composition according to Claim 16 wherein the thickening agent comprises silica.

18. The composition according to Claim 16 wherein the thickening agent is present in 5 amount effective to provide a thixotropic composition.

19. The composition according to Claim 16 further comprising (e) at least one monomeric material.

10 20. The composition according to Claim 19 further comprising (f) at least one additive selected from the group consisting of expansion agents and gelling agents.

21. The composition according to Claim 11 wherein the ratio of epoxy compound to polyol is about 1:1 to about 2:1.

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22. A method of providing a self supporting article or layer comprising:

(a) providing a first component comprising at least one epoxy compound, and a second component comprising at least one acid source, with at least one of the first component and second component including a polyol, and

20 (b) combining the first and second components so as to react the epoxy compound with the acid source.

23. The method according to Claim 22 further comprising (c) introducing the reaction product of (b) onto a substrate.

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24. The method according to Claim 22 wherein both of the first and second components include a polyol.

25. A method according to Claim 22 wherein the polyol comprises a polyester polyol, the epoxy compound comprises a cycloaliphatic epoxy compound, and the acid comprises phosphoric acid.

5 26. The method of Claims 1 wherein said exposing is sufficient to increase the viscosity of the composition.

27. A composition for forming a self-supporting article or layer comprising:

10 (a) a first component comprising at least one epoxy compound, and
(b) a second component comprising at least one acid source, wherein at least one of the first and second component includes a polyol,

28. The composition according to Claim 27 wherein both the first and second components include a polyol.

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29. A composition according to Claim 26 wherein the polyol comprises a polyester polyol, the epoxy compound comprises a cycloaliphatic epoxy compound, and the acid comprises phosphoric acid.

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